



Waste Reduction For Small Parts Washers

Ecology Fact Sheet

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Sink-type parts washing stations are a common sight in shops everywhere. In small shops, these parts washers may be responsible for much of the hazardous waste generated. With the costs of handling and disposing of hazardous waste on the rise, there has been a growing interest in reducing this waste and finding safer substitutes for the mineral spirits traditionally used. Many shops have found that solvent substitutes and simple changes in their cleaning operations reduced their waste, regulatory requirements, and safety concerns, while saving money at the same time.

Solvents Substitutes

A number of alternative solvents have been successfully used in small sink-type parts washers. They include:

- ✓ terpene blends
- ✓ enzymes (microbial based)
- ✓ heated detergents
- ✓ purified petroleum solvents

The Local Hazardous Waste Program in King County recently tested several brands of alternative parts washing solutions in a variety of shop applications. Results showed that:

- ✓ Petroleum distillates are good for all-around cleaning.
- ✓ Petroleum distillates with d-limonene are good for preliminary, heavy cleaning.
- ✓ Some applications require additional rinse and drying steps when using aqueous cleaners.
- ✓ Ferrous parts can be left to soak overnight in petroleum distillates, but not in aqueous cleaners.

Enzymatic parts washers have been getting attention recently. These washers feature microbial enzymes that eat up oil and grease. One model features enzymes contained in a replacable filter (\$10) that is changed monthly. The unit must be periodically topped-off with a water-based solution. Enzymatic washers have been successfully used in Washington state. The units have been reported to clean so well that no rust-protective layer remains on parts, so steps may be needed to prevent corrosion.

Many shops have installed cabinet-type aqueous parts washers that use jets of water and detergent (similar to a dishwasher). When these washers include filters, the detergent solution can be closed-looped for reuse. These units are available in all sizes.

Reduce Change-Outs of Your Cleaner

Cleaner life can be greatly extended through filtering and oil removal. Parts washers are available with small-particle filters that are replaced periodically. Some washers have oil removal devices built in. When the cleaner lasts longer, less must be thrown away, less needs to be purchased, and less time is spent on paper work and maintenance. If used with a non-hazardous cleaner, the savings can be impressive:

A two-year study of Bridgestone/Firestone Tire stores showed that the use of a non-hazardous parts washer solvent and a parts washer equipped with a filter reduced parts washer costs to an average of \$29.20 per month per parts washer.

In 1992 EPA sponsored a test of this system at a Tacoma auto dealership. Whereas the dealership formerly disposed of more than 1600 pounds of solvent a year from each mineral-spirits parts washer, the new system produced only 90 pounds of waste per washer. The unit paid for itself in a little over 3 years.

Get the Most Out of Your Parts Washer

No matter what cleaner you use, you may be able to save money and reduce waste with these tips:

- ✓ Make sure that your cleaning system is installed and operating according to the manufacturer's instructions.
- ✓ Brush or pre-clean parts to remove heavy contamination and increase cleaner life.
- ✓ Use a "sacrificial" cleaning tank before the main cleaning operation.
- ✓ Use tight-fitting lids to prevent solvent loss from evaporation.
- ✓ Prevent contamination of cleaner with trash, other liquids (especially chlorinated solvents like carburetor cleaner, lubricants, and aerosols.)
- ✓ Keep tank lids closed.
- ✓ Reduce drag-out of cleaner.
- ✓ Centralize and consolidate cold cleaning to minimize vapor losses.
- ✓ Install a solvent filter.

Sometimes More Is Less

For higher production volumes, cleaning with 2 or 3 parts washers used in series produces cleaner parts and makes solvents last 10-20 times longer. All parts are first washed in washer #1, then #2, then #3. Washer #1 takes most of the dirt (and gets far dirtier than solvent is usually allowed to get), and washers #2 and #3 stay cleaner. When either the first or the last washer gets too dirty to clean well, dispose of the solvent in #1, use #2 to refill #1, #3 to #2, and put fresh solvent in #3.

Some shops have reported series cleaning stations that generate less than a drum of waste per year. The payback on the equipment investment may range between 8 and 18 months, depending on the use. If you are having your solvent changed less frequently than once every 6 or 8 weeks, one or two washers are usually sufficient.¹

Regulation and Disposal of Parts Washer Wastes

Even if the cleaner you purchase is non-hazardous (check the Material Safety Data Sheet from the supplier), the dirt that enters the washer can cause the cleaner, sludge, or filters to be a hazardous waste. Dissolved metals, chlorinated aerosol sprays, and contamination from other shop solvents are the chief culprits. Only testing can assure that the waste is non-hazardous, but much can be done to minimize or eliminate the need for testing. Changing partswasher filters monthly, using only non-chlorinated products, and eliminating the use of carburetor cleaner that produces a dangerous waste, can keep your parts waste from becoming contaminated.

Off-site solvent recyclers can cause non-hazardous mineral spirits to become hazardous by contaminating them with chlorinated solvents. This is why it may pay to reclaim the solvent yourself (e.g., distill it) or make the solvent last longer.

If you subscribe to a parts washer service that exchanges spent, dirty solvent for fresh, the spent solvent is your responsibility and its disposal or off-site recycling counts toward your monthly hazardous waste generation total. (A typical 30-gallon parts washer produces 20 gallons of spent solvent weighing around 140 pounds.) By reducing your monthly generation of hazardous waste, you can significantly reduce your regulatory requirements and liability. Shops that produce less than 220 pounds of hazardous waste or 2.2 pounds of extremely hazardous waste per month and store less than 2200 pounds on site at any time are conditionally exempt small quantity generators (SQGs). SQG's are subject to fewer hazardous waste requirements. Chlorinated solvents in brake cleaner, carburetor cleaner, gasket remover, and paint strippers can cause your cleaner to become a hazardous or extremely hazardous waste. There are alternatives to these hazardous products that work well and will reduce the hazard level of your waste.

Though a cleaner may be biodegradable, your sewer authority may have a number of other restrictions that may apply, including pH, BOD, oils, and temperature. Even if it is biodegradable, testing may still show it to be a dangerous waste, either because of the cleaners ingredients or contaminants picked up from the parts being cleaned. Nothing except sanitary wastes should be discharged to a septic tank, and wastewater should never be disposed in a drywell or storm drain.

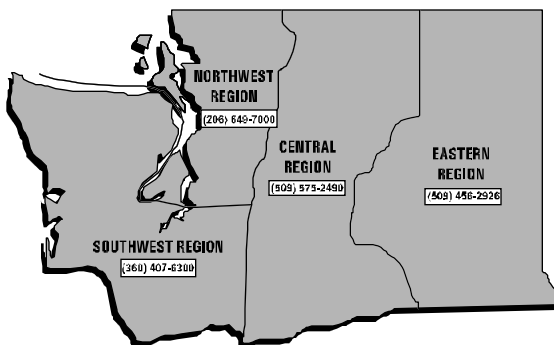
Footnotes:

1. Email from Ralph E. Cooper, American Institute of Hazardous Materials Management, 14307 Fox Fire Lane, San Antonio, TX 78231.

For More Information

Ecology has experienced Pollution Prevention Consultants available to advise you on solvent substitution and disposal. They can provide information over the telephone, or make educational (non-enforcement) visits to your work site to provide free technical assistance on solvent substitution, saving money, reducing waste, and locating suppliers. Use the regional phone numbers below to ask for a Toxics Reduction Specialist.

Northwest Region	(206) 649-7000	Central Region	(509) 456-2926
Southwest Region	(360) 407-6300	Eastern Region	(509) 575-2491



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If you have special accommodation needs or require this document in alternative format, please contact the Hazardous Waste and Toxics Reduction Program at (360) 407-6700 (voice) or (360) 407-6006 (TDD).

Ecology's telecommunications device for the deaf (TDD) number is (360) 407-6006. Regional TDD numbers are:

CRO (TDD) (509) 454-7673
ERO (TDD) (509) 458-2055

NWRO (TDD) (206) 649-4259
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